BONUS Quiz **3** MULTIVARIABLE CALCULUS

Name: _____

Assigned: **Friday April 3**

Due: **Monday April 6**

Time Begun: _____
Time Ended: _____

Prof. Ron Buckmire

Topic : Fubini's Theorem for Iterated Integrals

The idea behind this bonus quiz is to provide you with an opportunity to illustrate your understanding of applications of Fubini's Theorem in intreated integration.

Reality Check:

EXPECTED SCORE : _____/**5**   ACTUAL SCORE : _____/**5**

Instructions:

1. Once you open the quiz, you have **30 minutes** to complete, please record your start time and end time at the top of this sheet.

2. You may use the book or any of your class notes. You must work alone.

3. If you use your own paper, please staple it to the quiz before coming to class. If you don't have a stapler, buy one. NO LATE OR UNSTAPLED QUIZZES WILL BE ACCEPTED.

4. After completing the quiz, sign the pledge below stating on your honor that you have adhered to these rules.

5. Your solutions must have enough details such that an impartial observer can read your work and determine HOW you came up with your solution.

6. Relax and enjoy...

7. **This bonus quiz is due on Monday April 6**, at the beginning of class.

Pledge: I, _____, pledge my honor as a human being and Occidental student, that I have followed all the rules above to the letter and in spirit.

1(a) (*1 point*) Show that the integral $\displaystyle\int_0^1 \int_x^1 \int_0^y dz \; dy \; dx = \frac{1}{3}$.

1(b) (*2 points*) Change the order of integration of the integral in **(a)** and evaluate this new integral to confirm Fubini's Theorem.

2. (*2 points*) Consider the integral $\displaystyle\int_0^1 \int_y^{\sqrt{y}} 2xy \; dx \; dy$. Sketch the region being integrated and evaluate the integral two different ways.